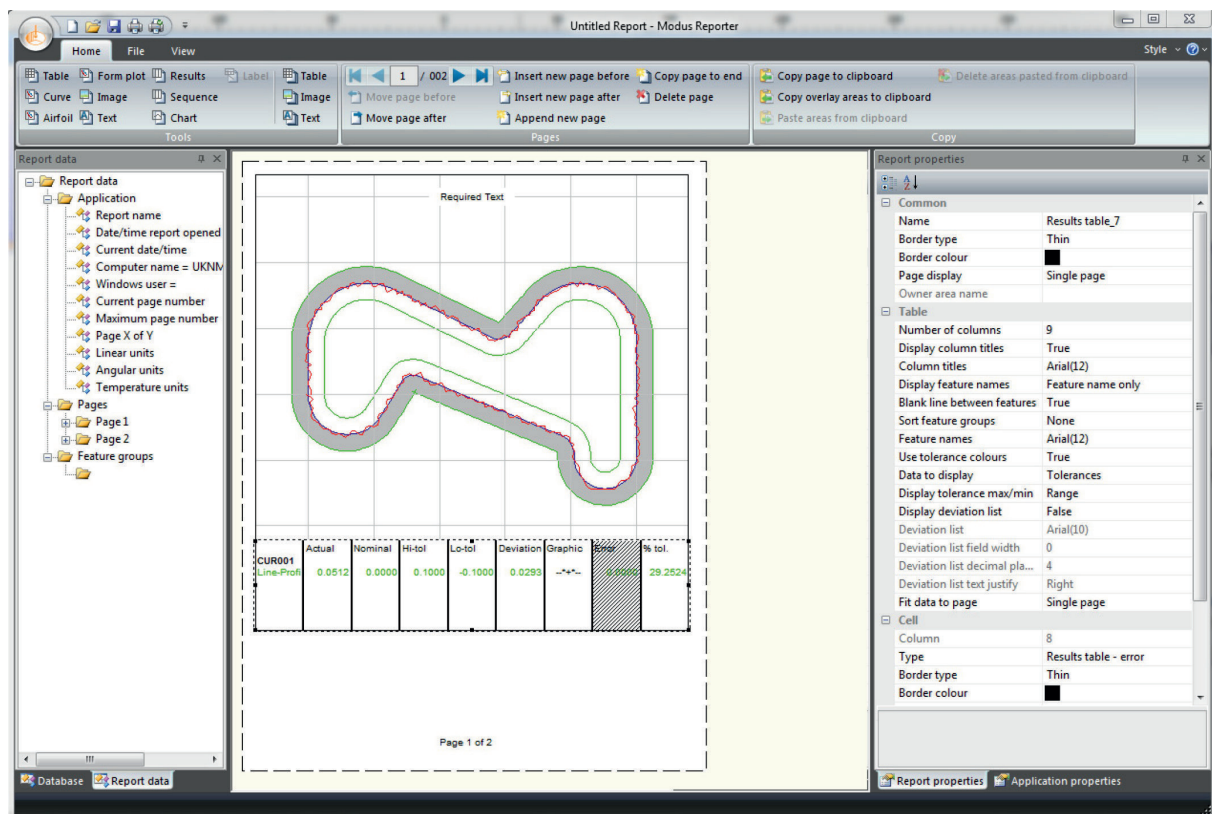


Further reporting



© 2013 Renishaw plc. All rights reserved.

Renishaw® is a registered trademark of Renishaw plc.

This document may not be copied or reproduced in whole or in part, or transferred to any other media or language, by any means, without the prior written permission of Renishaw.

The publication of material within this document does not imply freedom from the patent rights of Renishaw plc.

Disclaimer

Considerable effort has been made to ensure that the contents of this document are free from inaccuracies and omissions. However, Renishaw makes no warranties with respect to the contents of this document and specifically disclaims any implied warranties. Renishaw reserves the right to make changes to this document and to the product described herein without obligation to notify any person of such changes.

Trademarks

All brand names and product names used in this document are trade names, service marks, trademarks, or registered trademarks of their respective owners.

Further reporting

Care of equipment

Renishaw probes and associated systems are precision tools used for obtaining precise measurements and must therefore be treated with care.

Changes to Renishaw products

Renishaw reserves the right to improve, change or modify its hardware or software without incurring any obligations to make changes to Renishaw equipment previously sold.

Warranty

Renishaw plc warrants its equipment for a limited period (as set out in our Standard Terms and Conditions of Sale) provided that it is installed exactly as defined in associated Renishaw documentation.

Prior consent must be obtained from Renishaw if non-Renishaw equipment (e.g. interfaces and/or cabling) is to be used or substituted. Failure to comply with this will invalidate the Renishaw warranty.

Claims under warranty must be made from authorised service centres only, which may be advised by the supplier or distributor.

Trademarks

Windows 98, Windows XP, Windows 2000 and Windows NT are registered tradenames of the Microsoft Corporation.

IBM is the tradename of the International Business Machines Inc

All trademarks and tradenames are acknowledged.

Contents

1	Further reporting	6
1.1	Tutorial pre-requisites.....	6
1.2	Tutorial objectives.....	6
2	Introduction.....	7
3	Creation and printing of a report for plotting a 2D curve	8
4	Creation and printing of a report for circular feature form plot.....	17
5	Deviation markers with heat map	18

1 Further reporting

1.1 Tutorial pre-requisites

- The student should have completed tutorials that cover basic measurement techniques, in particular 'Curve scanning considering all 5-axis benefits / influences'
- The student should have completed 'Create a user defined PDF report using MODUS reporter' tutorial

1.2 Tutorial objectives

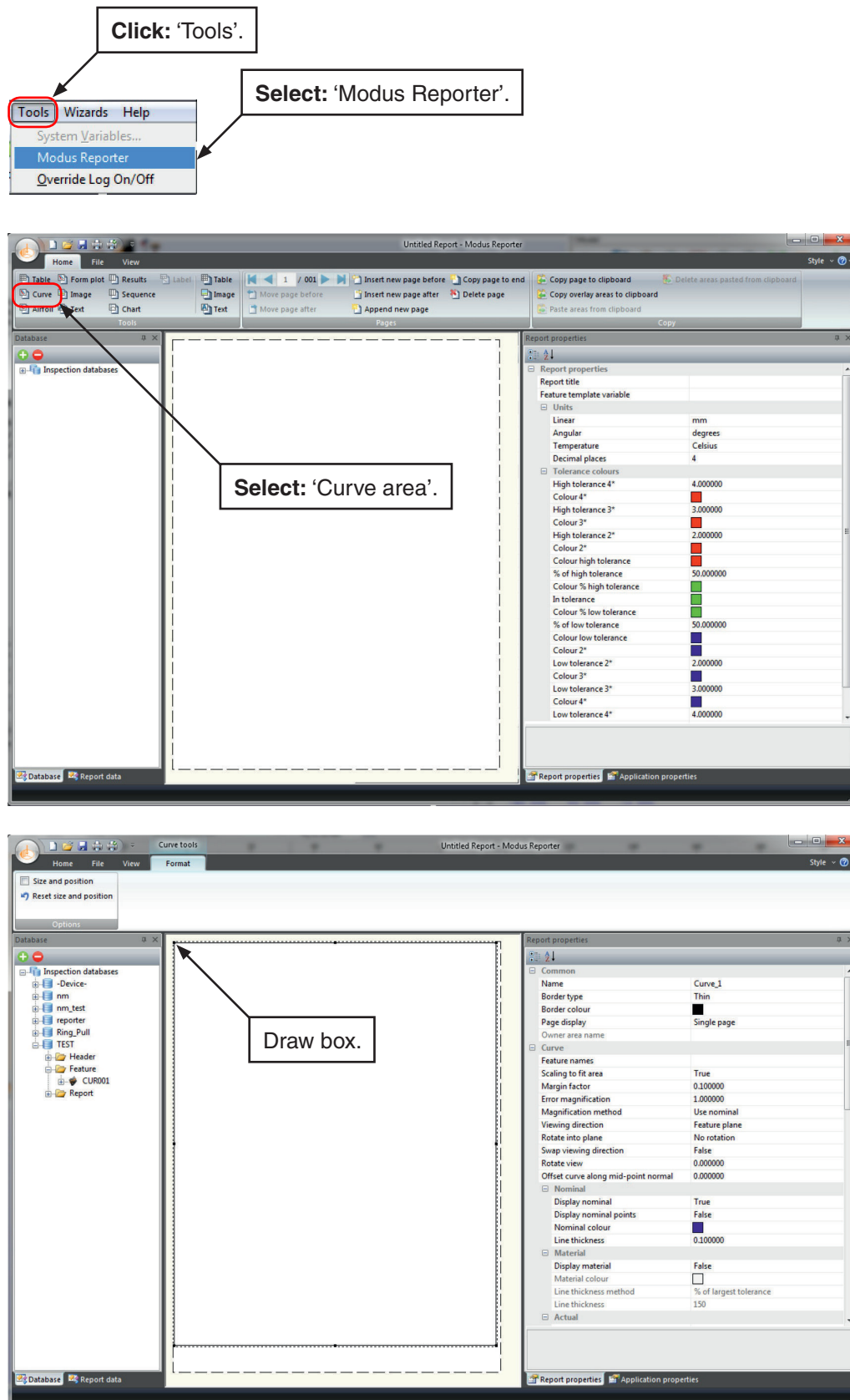
- Further exposure to methods of graphical reporting
- Consideration of enhanced display techniques to further communicate graphical and numerical results

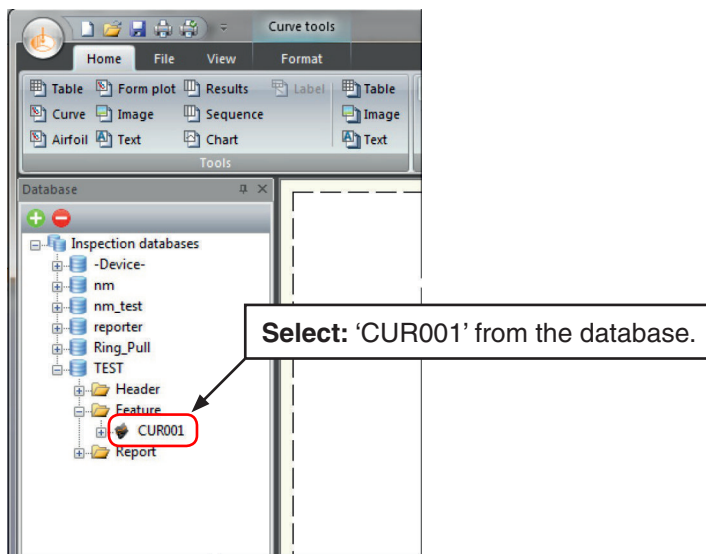
2 Introduction

In this tutorial the student will explore wider options within MODUS reporter to create scaled graphical representations of measured results.

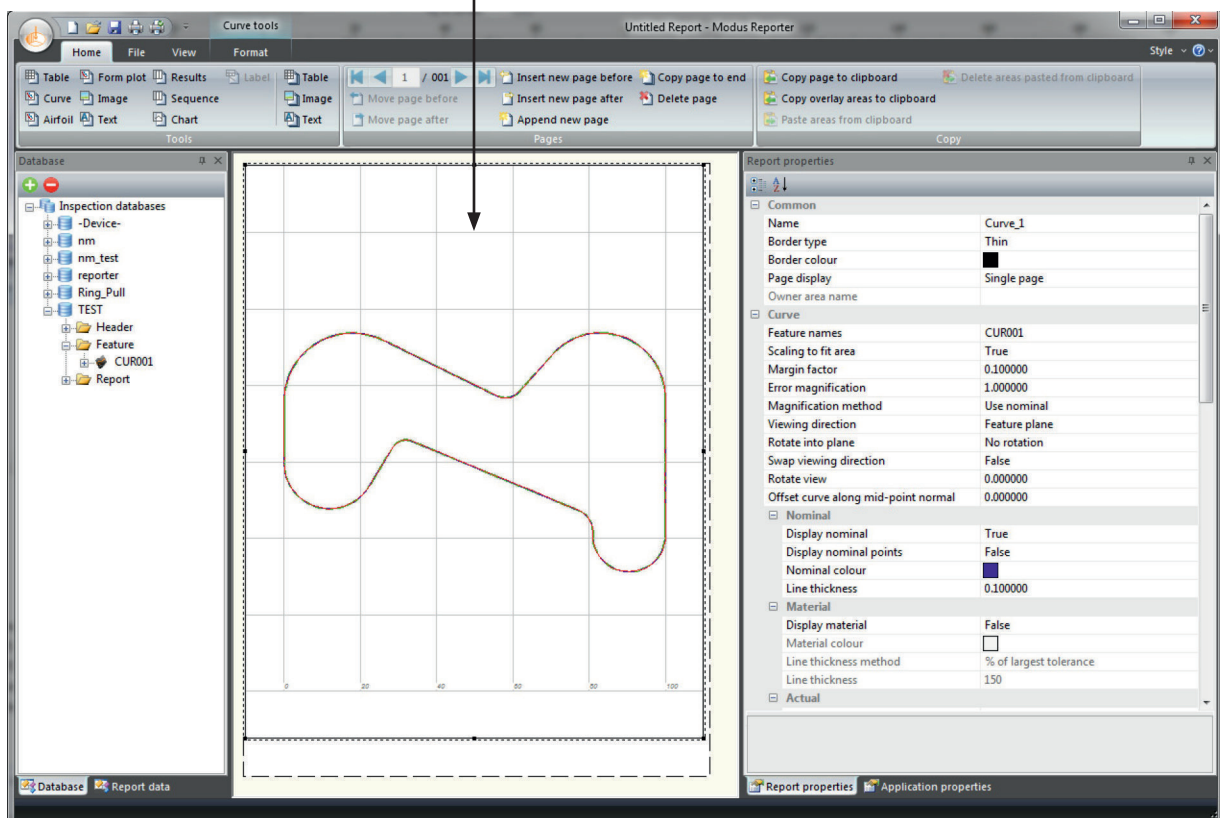
3 Creation and printing of a report for plotting a 2D curve

Before starting this section of the tutorial, ensure that the racetrack profile (or other 2D curve) has been measured and inputted.

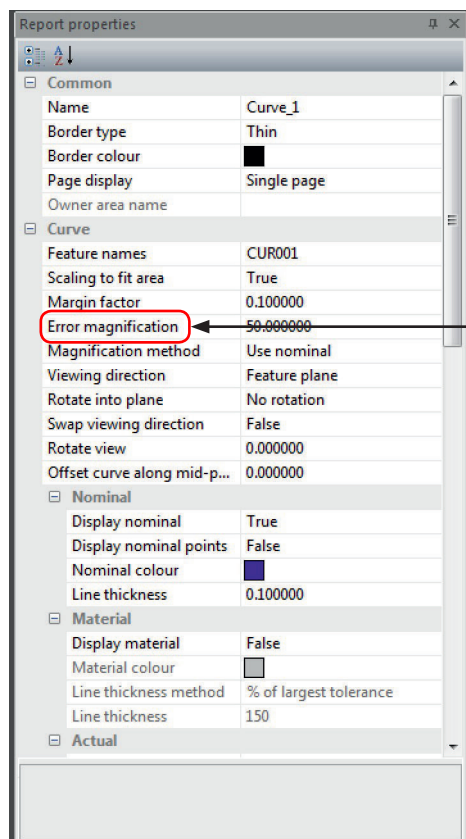




Drag and drop into the previously created window.

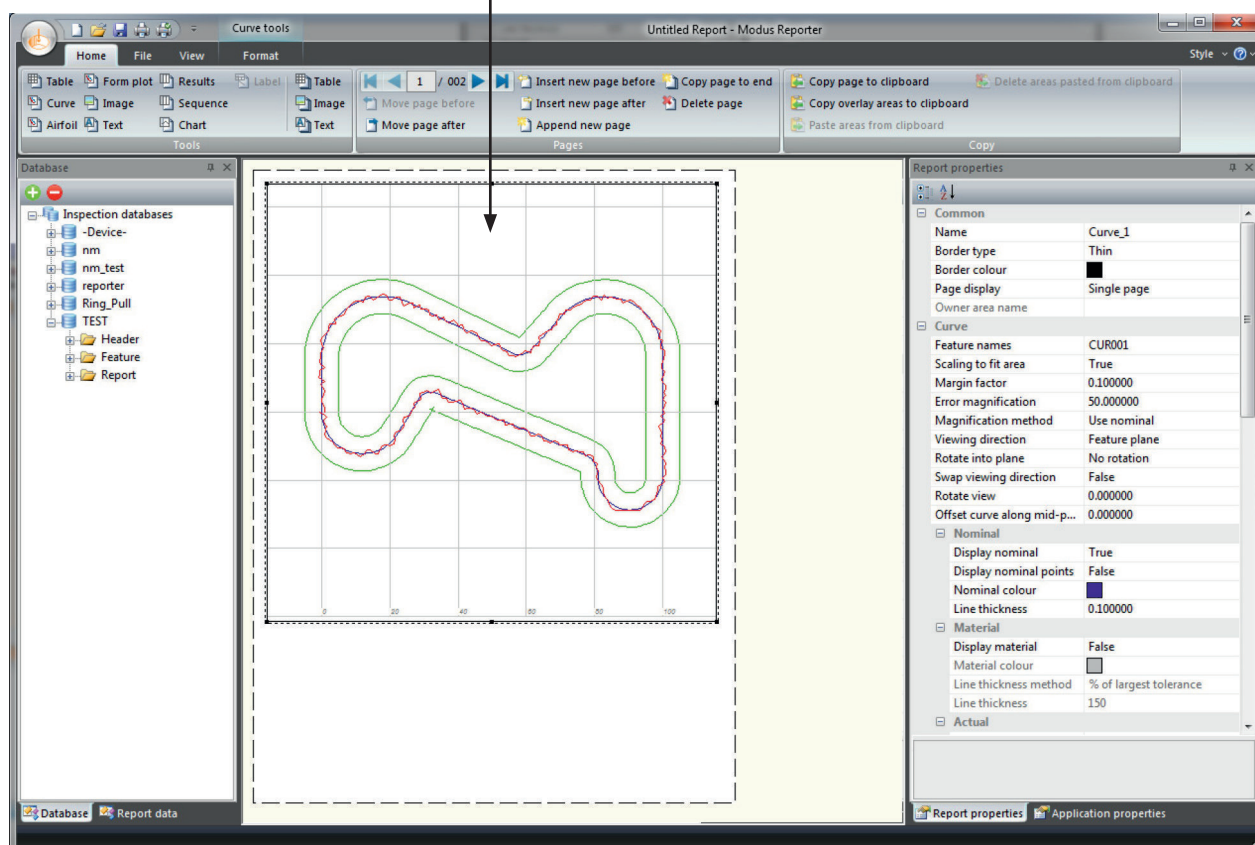


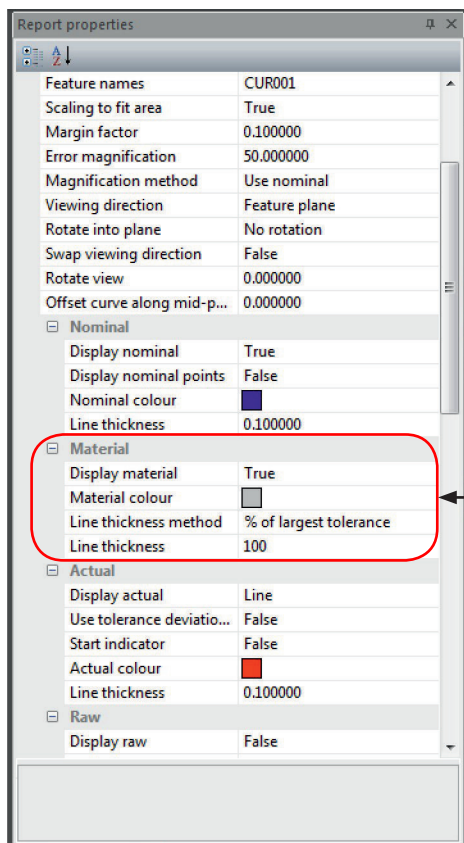
With the 'Curve' area window selected the 'Report properties' dialogue box will become active:



Highlight the 'Error magnification' and adjust as applicable.

Select: 'F5' to refresh.

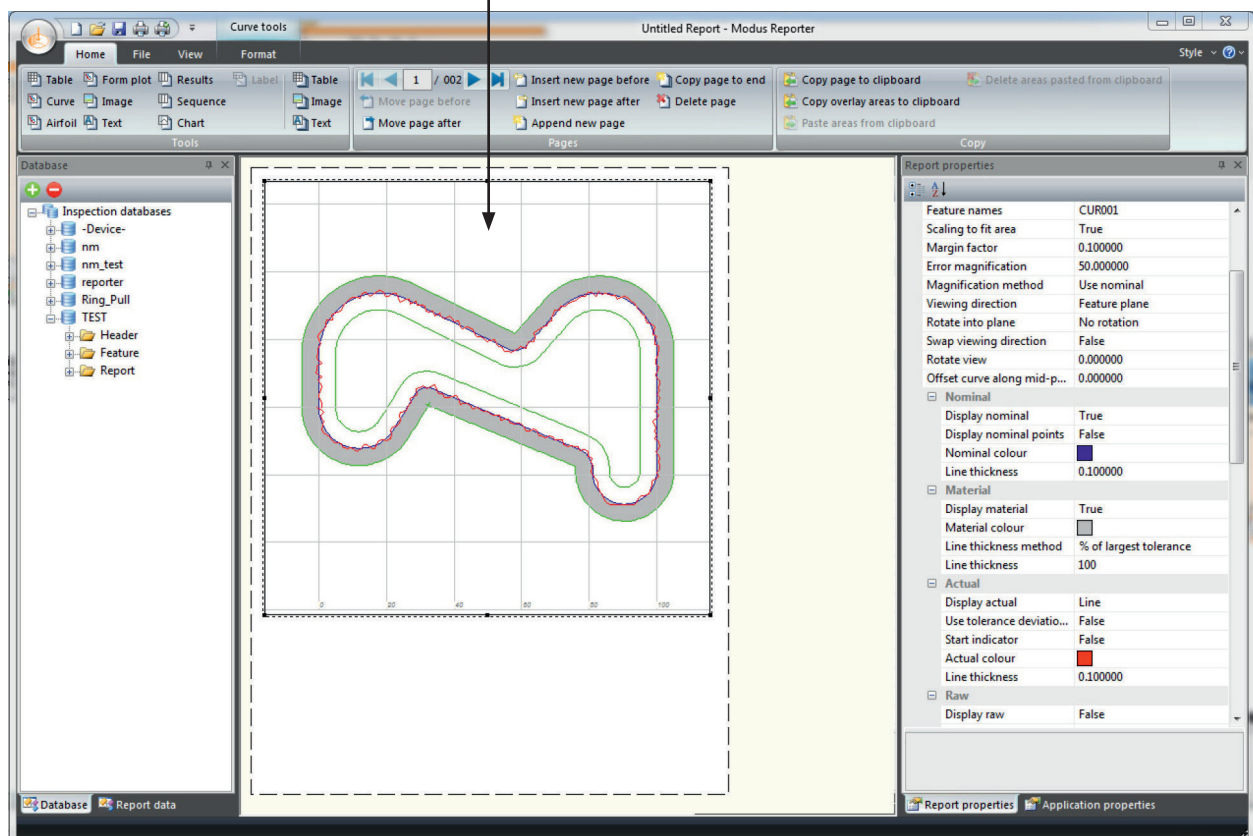




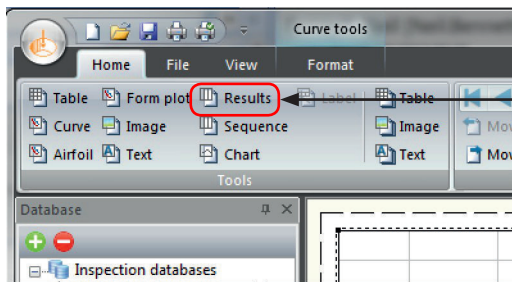
From within the 'Report properties', display the 'Material' for visualisation.

The colour and thickness can be adjusted to suit.

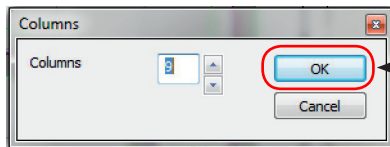
Select: 'F5' to refresh.



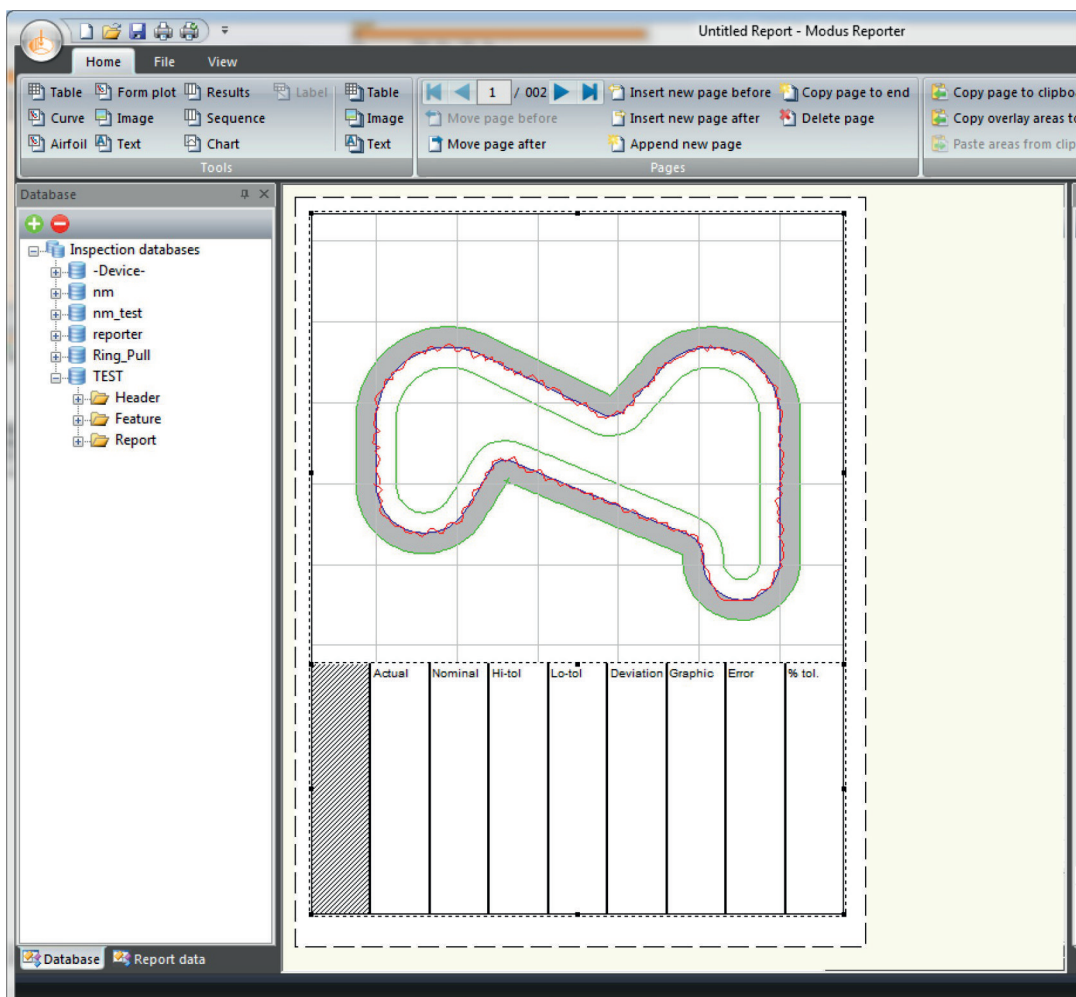
Bring in a 'Results' table and populate with output results:



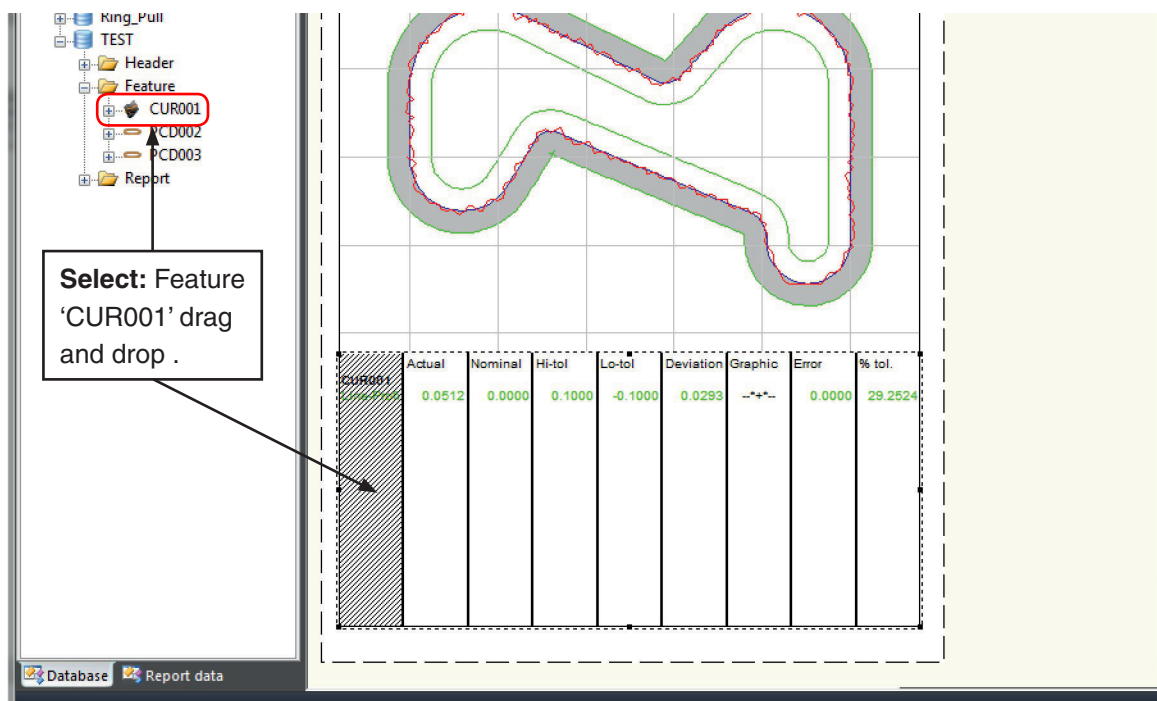
Select: 'Results' and draw box.



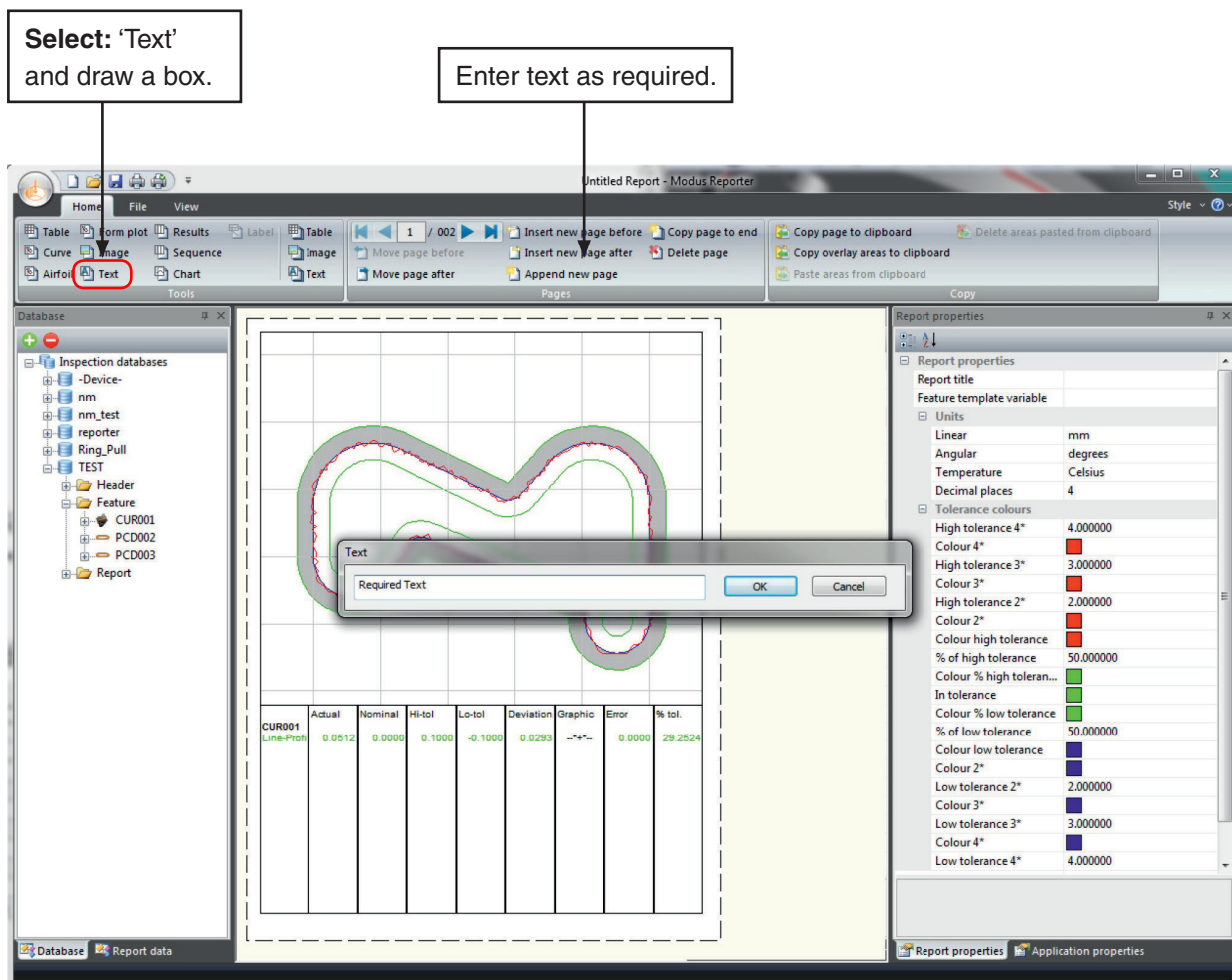
Click: 'OK'.



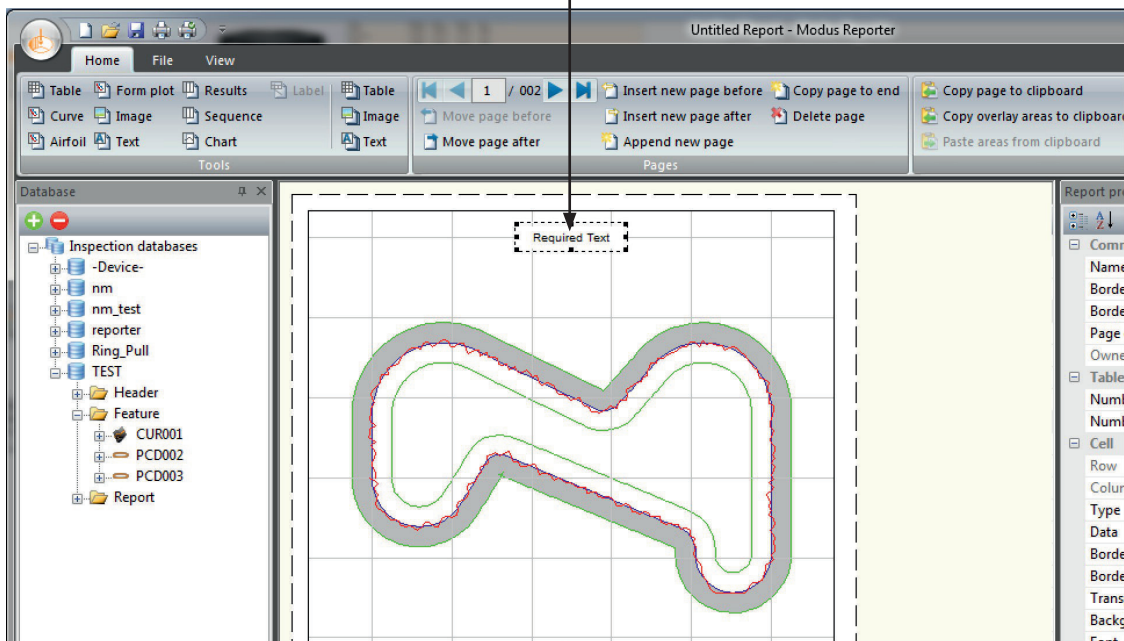
Now select the 'Output Feature' from the 'Data Base' to drag and drop into the created table:



Bring in a 'Text Box' to describe the feature:



Adjust size and location of 'Text Box' as required .

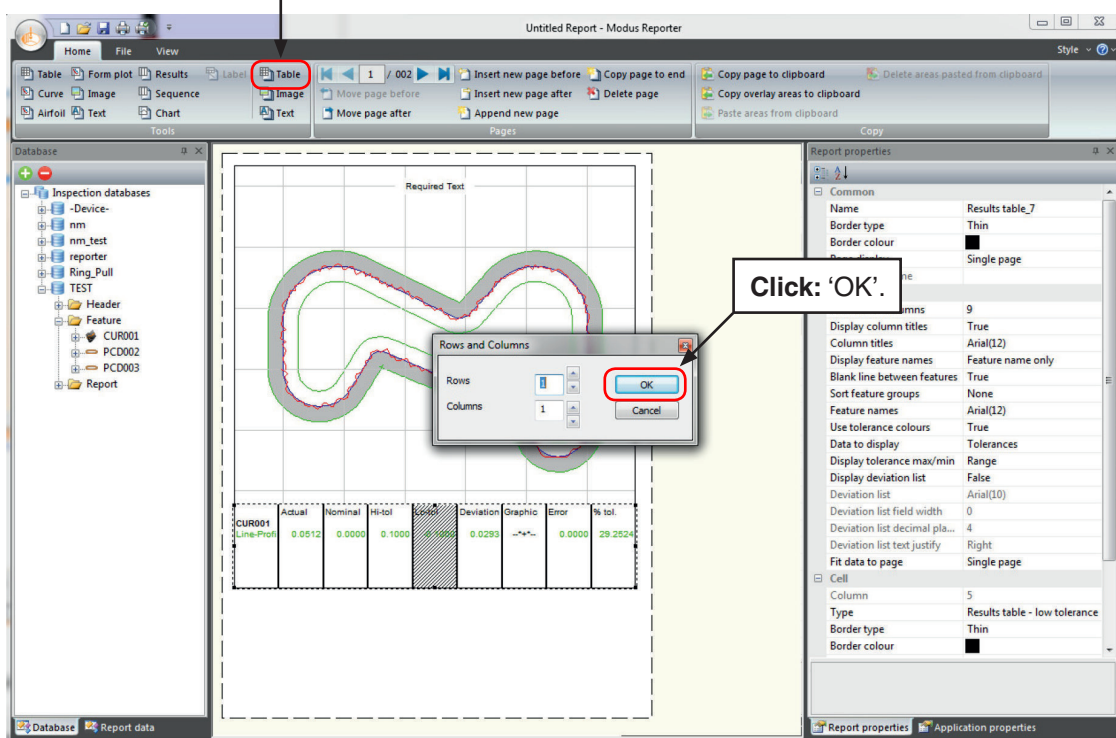


In order to add automatic page numbering, create a new 'Overlay Table' which will appear on multiple pages.

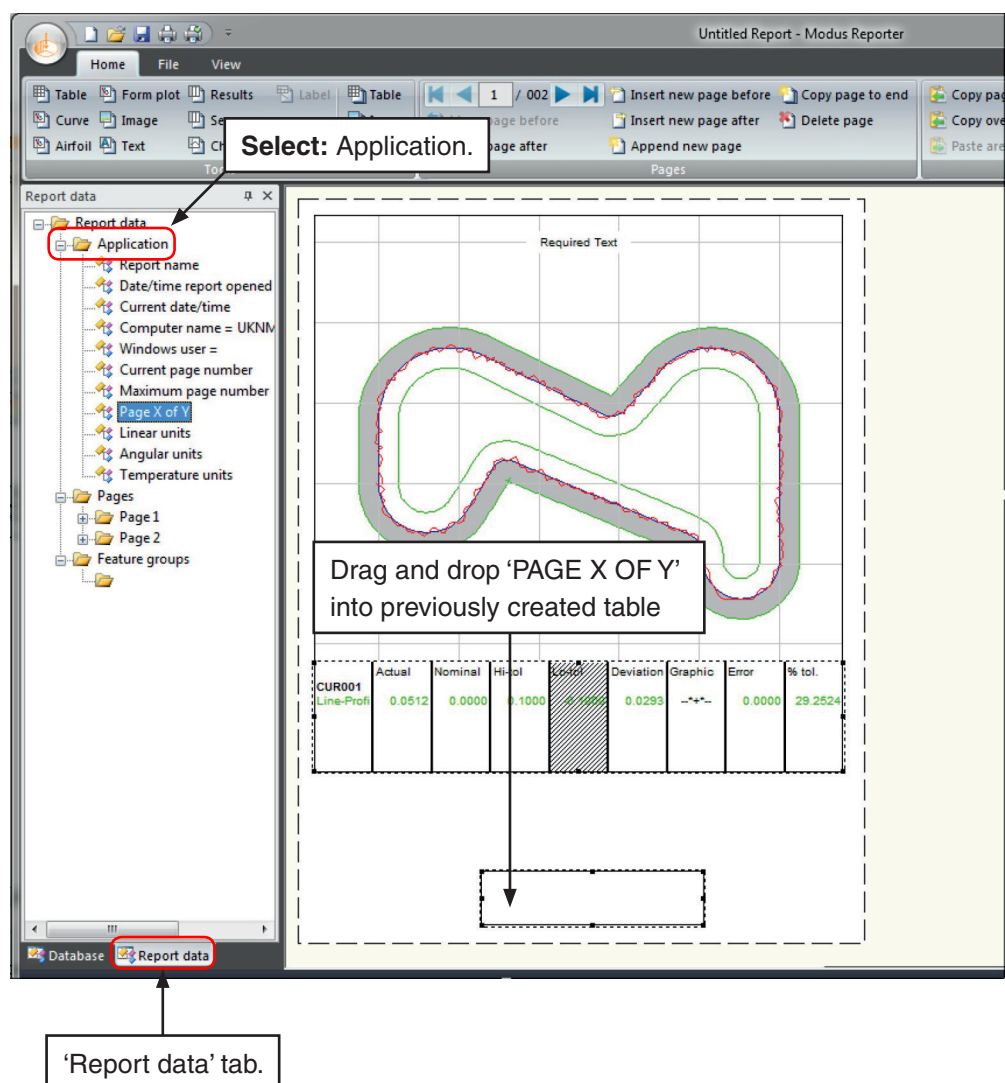
GUIDANCE NOTE: An overlay area is used to hold data that will be displayed on every page of the report.

Select: 'Overlay Table' from the tools menu, then draw a box in the required position.

Click: 'OK' to the column dialogue box.

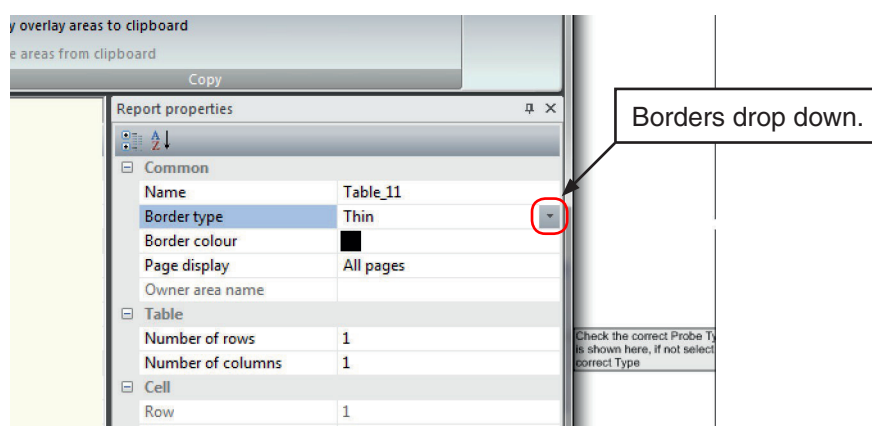


From the 'Report Data' tab, drag and drop the required data into the 'Overlay Table':

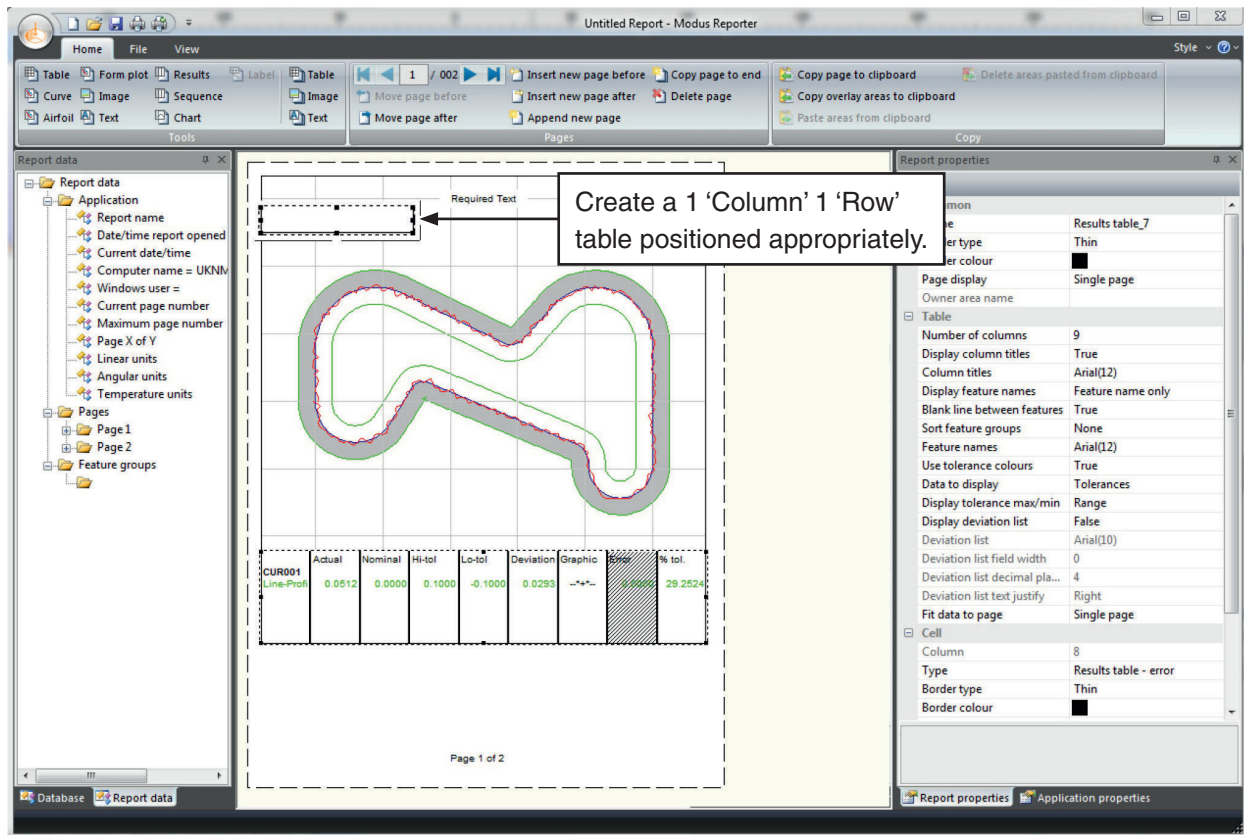


By selecting the 'Overlay Table' box created, the 'Report Properties' have become active

Now hide any borders as required:



Display error magnification in the report:



Required Text

Create a 1 'Column' 1 'Row' table positioned appropriately.

	Actual	Nominal	Hi-tol	Lo-tol	Deviation	Graphic	Border	% tol
CUR001 Line-Profil	0.0512	0.0000	0.1000	-0.1000	0.0293	29.2524

Page 1 of 2

Report properties

Table

Number of columns: 9

Display column titles: True

Column titles: Arial(12)

Display feature names: Feature name only

Blank line between features: True

Sort feature groups: None

Feature names: Arial(12)

Use tolerance colours: True

Data to display: Tolerances

Display tolerance max/min: Range

Display deviation list: False

Deviation list: Arial(10)

Deviation list field width: 0

Deviation list decimal places: 4

Deviation list text justify: Right

Fit data to page: Single page

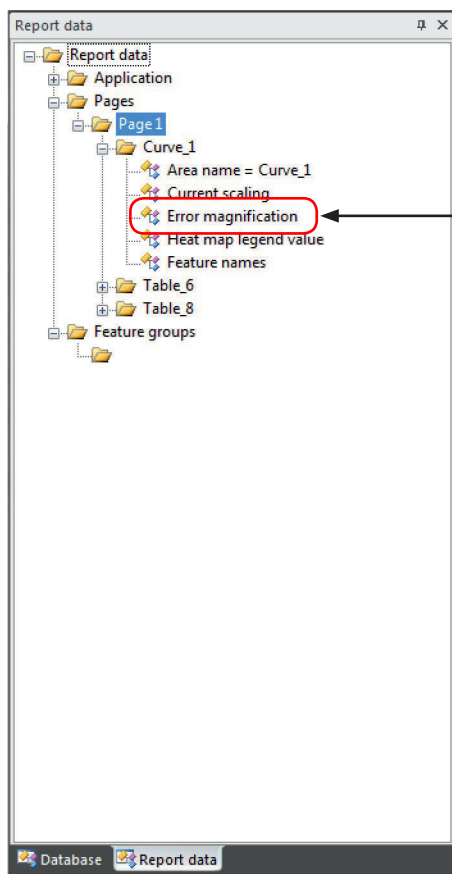
Cell

Column: 8

Type: Results table - error

Border type: Thin

Border colour: Black



Report data

Application

Pages

Page 1

Curve_1

Area name = Curve_1

Current scaling

Error magnification

Heat map legend value

Feature names

Table_6

Table_8

Feature groups

Drag and drop 'Error Magnification' into previously created table

Properties of the table can be edited as required in this dialogue box.

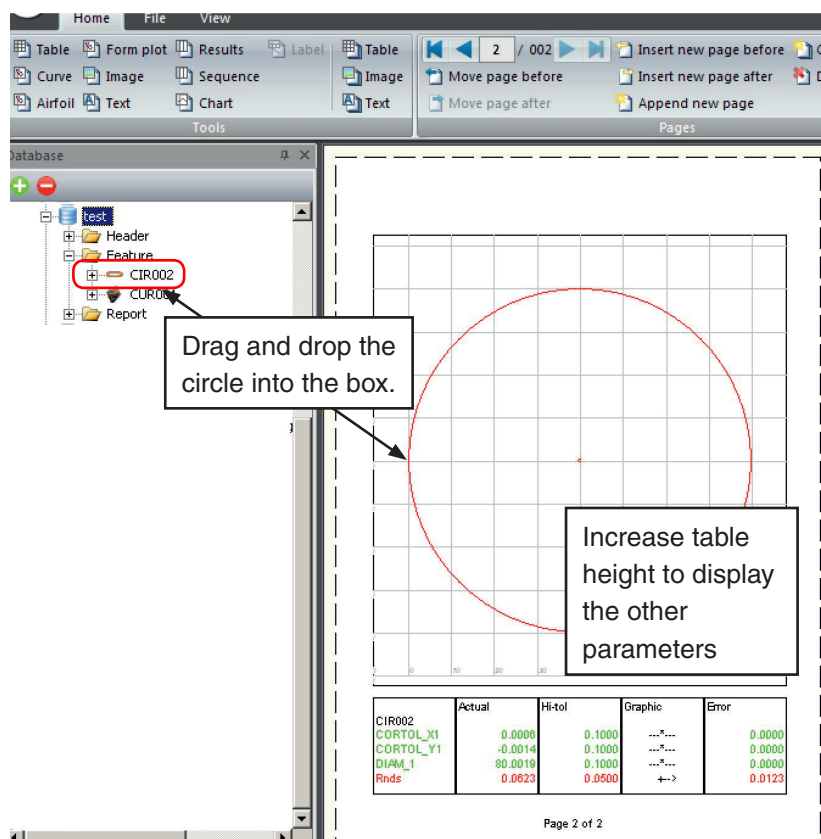
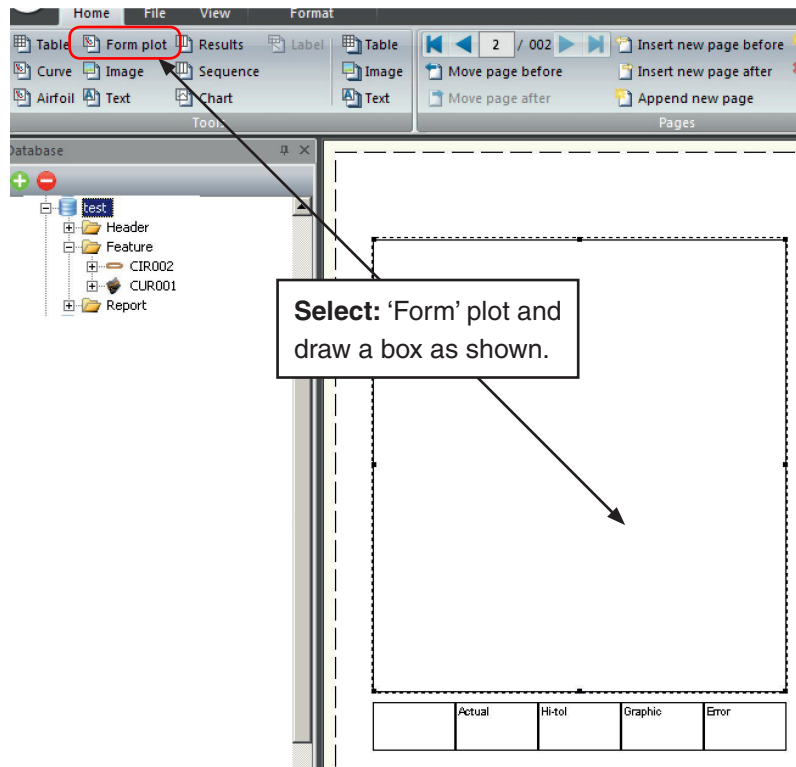
Cell

Row	1
Column	1
Type	Text
Data	Error Mag
Border type	Thin
Border colour	Black
Transparent background	False
Background colour	White
Font	Arial(12)
Field width	0
Decimal places	4
Horizontal text alignment	Left
Vertical text alignment	Top
Clip text	True
Wrap text	False

The report can now be saved / printed as required.

4 Creation and printing of a report for circular feature form plot

For this section of the tutorial, a circular feature must have been measured and outputted.



5 Deviation markers with heat map

Deviation markers can be displayed in colour to provide a 'heat map' that visually indicates the degree of deviation from the nominal profile. This provides the greatest colour contrast in the report area. If this option is selected (i.e. deviations heat map is set to 'True' in the properties for the area), the degree of deviation is indicated using a colour gradient from red, through green to blue.

Properties can be adjusted as required:

Report properties

Page display	Single page
Owner area name	
Form plot profile	
Feature names	CIR002
Scaling to fit area	True
Margin factor	0.100000
Error magnification	50.000000
Magnification method	Use nominal
Rotate into plane	No rotation
Rotate view	0.000000

Highlight the 'Error magnification'.
Adjust as applicable.

Report properties

Actual colour	■
Line thickness	0.100000
Raw	
Display raw	False
Display raw points	False
Raw colour	■
Line thickness	0.100000
Deviations	
Display deviations	True
Display deviation points	False
Line thickness	0.100000
Deviations heat map	True
Deviations heat map aut...	True
Deviations heat map half...	0.100000
Nominal tolerance	

Ensure 'Display deviations' equals true.

Rows and Columns

Rows	2	OK
Columns	1	Cancel

Add a new table.

Report data

- Report data
 - Application
 - Pages
 - Page 1
 - Table_1
 - Form plot_8
 - Results table_9
 - Table_11
 - Feature groups

Position table as desired.

Report properties

Common	
Name	Form plot_8
Border type	Thin
Border colour	■
Page display	Single page
Owner area name	
Form plot profile	
Feature names	CIR002
Scaling to fit area	True
Margin factor	0.100000
Error magnification	50.000000
Magnification method	Use nominal
Rotate into plane	No rotation
Rotate view	0.000000
Nominal	
Display nominal	True
Display nominal points	False
Nominal colour	■
Line thickness	0.100000
Actual	

Click in the box to get the plot name.

Form Plot_8

Report properties

Common	
Name	Table_11
Border type	Thin
Border colour	■
Page display	Single page
Owner area name	
Table	
Number of rows	2
Number of columns	1
Cell	
Row	1
Column	1
Type	Heat map legend
Border type	Thin
Border colour	■
Transparent background	False
Background colour	□
Horizontal text alignment	Left
Vertical text alignment	Top
Clip text	True
Wrap text	False

Select the top row of the table.

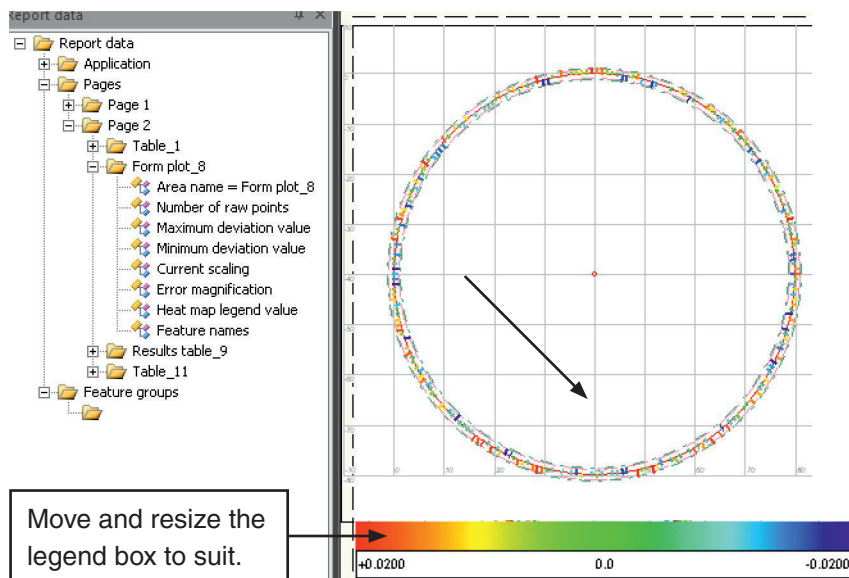
In the 'Report properties' box select 'Type' then select 'Heat map legend' from the drop down menu.

The legend will now appear in the table

Select the 'Report data' tab, 'Page 2' and then click on the recently created form plot. Now drag and drop 'Heat map legend value' into the lower box.

Report data

- Report data
 - Application
 - Pages
 - Page 1
 - Page 2
 - Table_1
 - Form plot_8
 - Area name = Form plot_8
 - Number of raw points
 - Maximum deviation value
 - Minimum deviation value
 - Current scaling
 - Error magnification
 - Heat map legend value
 - Feature names
 - Results table_9
 - Table_11
 - Feature groups



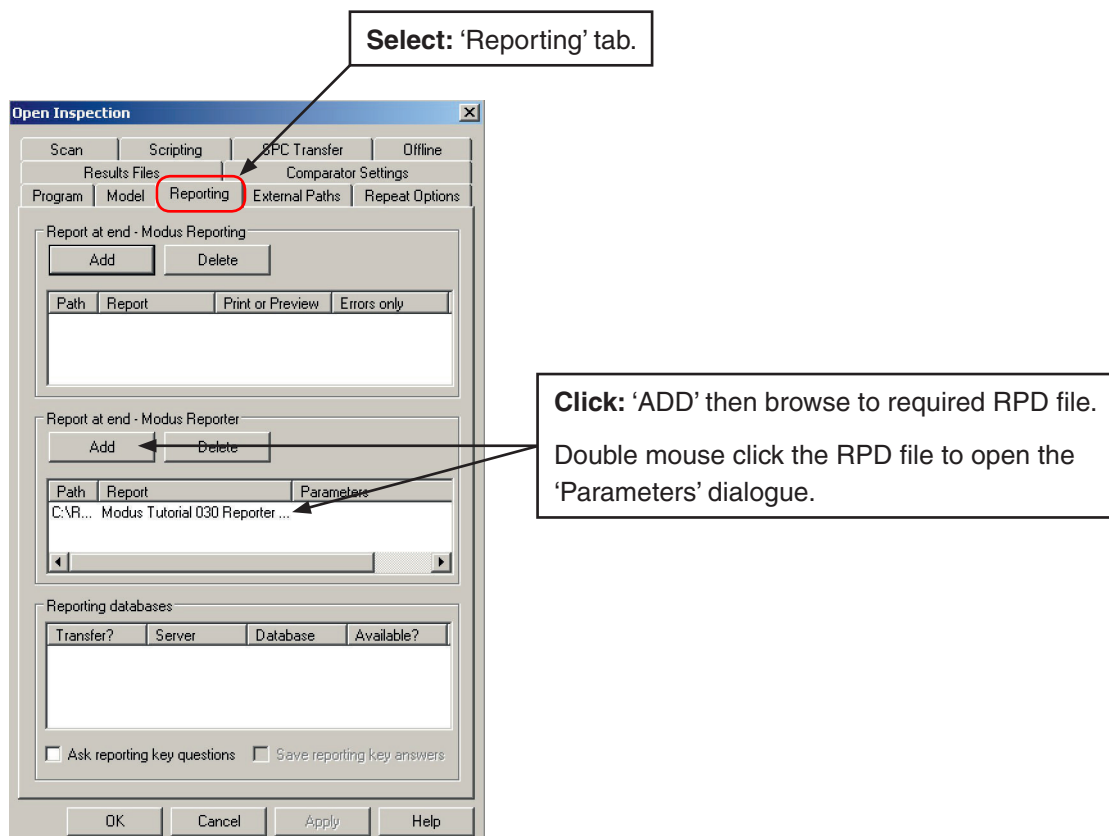
The table now shows the 'Heat map legend' maximum and minimum deviations from nominal.

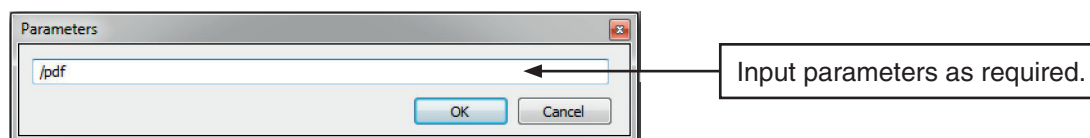
When completed save the template, this will create a 'RPD' file.

Then close it.

Now close and re-open the part program and set it to run 'Reporter' when the program finishes.

NOTE: The 'ENDFIL' instruction must be executed at the end of the program.



**Basic parameter examples:**

/p - Prints the report data to the default printer.

/pdf - Prints the report data to a PDF file, using the same filename as the report filename. Appends the data to the PDF if this already exists.

/pdf /pdfout "PDFname" - Prints the report data to a PDF file of the specified filename (enclosed in double quotes). Appends the data to the PDF if this already exists.

Example: /pdf /pdfout "C:\Renishaw\Reports\DataXXX.pdf".

Renishaw plc
New Mills, Wotton-under-Edge,
Gloucestershire, GL12 8JR
United Kingdom

T +44 (0)1453 524524
F +44 (0)1453 524901
E uk@renishaw.com
www.renishaw.com

RENISHAW 
apply innovation™

**For worldwide contact details,
please visit our main web site at
www.renishaw.com/contact**



H - 1000 - 5324 - 01